Dr. W. H. Eccles, F.R.S.

AN APPRECIATION

Dr. W. H. Eccles, who died on 29 April at the age of 90, had been a Fellow of The Physical Society since 1902 and of The Institute of Physics since 1920. He had spent a major portion of his active life associated with scientific research into various problems in the fields of radio communications and what is now termed 'electronics'.

William Henry Eccles was born at Ulverston, Lancashire, on 23 August 1875. After a secondary school education, he entered the Royal College of Science at South Kensington in 1894. Three years later he gained his Associateship of the College, and in 1898 he graduated as a Bachelor of Science at London University with first class honours. The following year he joined Mr. Marconi in the laboratory of the Wireless Telegraphy and Signal Company (later the Marconi Company) at Chelmsford. Here he investigated electrical oscillations in coupled circuits and carried out research on the properties of coherers, the results of which were presented in a thesis which gained him his D.Sc. degree at London in 1901.

He then turned to teaching as head of the Department of Mathematics and Physics at Chelsea Polytechnic, and ten years later he became Reader in Graphics at University College London. In 1916 he was appointed to the Chair of Applied Physics and Electrical Engineering at the City and Guilds of London Technical College, at Finsbury. During all these years, however, his responsibilities for lectures left him ample time to devote to his interests in research. His work on coherers was extended to a comprehensive study of crystal detectors for radio reception before the introduction of the thermionic valve. And it was in 1912 that he presented a paper before the Royal Society expanding the theory, advanced some years earlier by Oliver Heaviside, to explain the propagation of electromagnetic waves around the earth by successive reflections in the ionized and electrically conducting regions of the upper atmosphere. Eccles suggested that the ionizing influence of the sun's radiation would account for the observed differences in the strength of signals received by day and by night. During the period 1912–1913, Dr. Eccles also played a leading part in the investigations conducted by the British Association into the characteristics of atmospheric disturbances in radio reception. This early work encouraged research in this field which has continued throughout the world during the past half-century.

During and after the First World War, Dr. Eccles' wide knowledge and experience were much sought after in the development of both civil and military wireless communications. Later he was vice-chairman under Lord Milner of the Imperial Wireless Telegraphy Committee, and he played an important part in the design of the original Post Office long-wave high-power transmitting station at Hillmorton near Rugby. At this time, also, he was interested in studying various characteristics of thermionic valves, and with a colleague, Dr. F. W. Jordan, he developed the tuning fork master oscillator used for the precise control of the frequency of the Rugby station.

Dr. Eccles' interest in physics and electrical science was very wide. He was a member of the Council of The Physical Society from 1907 to 1912; he served as Honorary Secretary during the period 1915–1919, was Vice-President during 1919–1922, and was President for a double term from 1928 to 1930. Similarly, his interest in the early formative years of The Institute of Physics led to his becoming a member of the Board during 1920–21 and Vice-President from 1921 to 1925, followed by a two-year term as President (1929–31). He was also President of The Institution of Electrical Engineers for the 1926–1927 session. His keen interest in the activities of the radio amateur led him to become a founder member of the Radio Society of Great Britain, and he was its President for the years 1923–24.

The results of his researches were described in numerous papers published by scientific societies. His book *Wireless Telegraphy and Telephony*, of which the second and enlarged edition was published in 1918, was for many years one of the very few comprehensive textbooks available to engineers and scientists engaged in the study and development of radio communications. Another volume, entitled *Continuous Wave Wireless Telegraphy*, published in 1921, was a pioneer work of reference in this subject.

As one of the early scientists in the field, it was perhaps natural that he should be closely associated with his contemporaries in other countries. This led to his being one of the three delegates from the United Kingdom at the first General Assembly of the International Commission on Radio Telegraphy, held in Brussels in April 1914. This was later renamed by its present title—International Scientific Radio Union—of which Dr. Eccles was Vice-President during the period 1920–1934 and was elected an Honorary President in the latter year.

After the period of intense activity described above, Dr. Eccles continued for many years in private consulting practice until a severe illness compelled him to retire to the country. All those scientists and engineers engaged in the fields of radio and electronics will acknowledge with sincere gratitude the great contributions which Dr. Eccles made to our present knowledge of this branch of science.

R. L. Smith-Rose